REMARKS

Applicant has amended claims 1 and 4. Claims 1-4, 7-9, and 11-15 are still pending in this application. Applicant has made the amendment in a genuine attempt to address the Examiner's concerns and to place the application in a better condition for allowance or for appeal. It is believed that these amendments do not raise new issues that would require a new search to be conducted. As such, Applicant respectfully requests that these amendments be entered.

The Examiner rejected claims 1-4 under 35 U.S.C. §103(a) as being obvious over Uhl (U.S. Patent No. 5,751,417) in view of Stafford (US Patent No. 5,504,575). Although applicant has amended claim 1, applicant traverses the rejection to the extent that it applies to the amended claims.

As was previously discussed in an Amendment dated July 15, 2002, the present invention as claimed in claim 1 concerns use of a dispersion element and a switchable mirror array to control selection of certain wavelengths in a microscope. As an example, Figure 3A illustrates an arrangement where the mirror array is used in both the illumination path and the detection path (see Specification page 8, lines 26-28). As another example, Figure 2 illustrates an arrangement where the mirror array (DMD) is used in only the detection path. As shown Figure 2, the detection beam coming through the pinhole PH1 is spatially dispersed by a dispersion element GT1 and hits the mirror array DMD. The mirror array DMD then selects certain wavelengths from the spatially dispersed wavelengths. The selected wavelengths which have been spatially separated by the dispersion element DT1 are then received by a detector DT3. (See Specification at page 7, lines 15-30).

Accordingly, claim 1 includes a feature that those wavelengths that have been selected by the mirror array are received by a detector **as dispersed by a dispersion element** without the selected wavelengths being recombined (emphasis added). Being able to select certain wavelengths from the light that has already been spatially dispersed is a very important feature of the present invention. This is especially true in a confocal fluorescence microscope because now the spectrum of light emitted by a fluorescing sample can be divided into different spectral

zones that can be treated as separate detection channels to accommodate multiple fluorescences from the sample which have different fluorescing wavelengths (see specification at page 1, lines 12-17). On the other hand, this feature provides another advantage that the selected wavelengths can be simultaneously detected by a detector array for accurate and faster imaging.

To make it clear that the mirror receives light that has been spatially dispersed, claim 1 has been amended to recite "a dispersion element operable to spatially disperse an object light" and "micro-mirror arrangement in a detection beam path which is used for the wavelength selection of **the spatially dispersed object light**" (emphasis added).

The Examiner stated that Uhl discloses the arrangement as claimed in claim 1. Applicant respectfully disagrees. The Uhl reference teaches that the selected wavelengths dispersed by a dispersion element 28 are recombined by a negative dispersion element 34 before it reaches a detector 38 (element 36 at the lower left portion of Figure 1 should be apparently labeled as 38) (See Column 6, lines 12-19). Uhl uses at least two spectrometer arrangements 28, 34 in the observation beam path. These are identical to one another and are arranged in such a way that the spatial dispersion after the diaphragm 32 is exactly cancelled, i.e., the wavelength proportions are spatially superimposed again. As stated in the Uhl reference at col. 3, lines 1-15, "a second spectrometer arrangement which is analogous to the first spectrometer arrangement and which is operated in **subtractive dispersion in order to spectrally re-combine the light** of the wavelength selection diaphragm which has been spatially fanned out and to image it in a second image plane". In other words, the light being received by the detector is not a spatially dispersed light at all. Rather, it is a non-separated integral signal.

By contrast, the detector of the present invention always receives spectrally dispersed signal. The Examiner stated that the "language of the claims is seen to only require the detected light having been dispersed at some point in the optical path (which Uhl shows)". Applicant respectfully disagrees. Claim 1 of the present invention requires the detector to **receive the spatially dispersed light** by reciting "wherein the selected wavelengths that have been dispersively divided are received by a detector". Thus, the light coming from the sample is **a spatially dispersed light at the point of detection**. By contrast, the light being received in the Uhl arrangement is not dispersed at all at the point of detection. As discussed above, the light

being received by the Uhl detector is an integral signal where all the wavelengths have been recombined. Uhl neither teaches nor suggests routing dispersed wavelengths to a detector without recombining the wavelengths.

The Examiner then cites Stafford as showing a dispersed light being incident upon a detector and asserts that it would have been obvious to combine Stafford with Uhl to produce the invention as claimed. Applicant respectfully disagrees. First, Stafford describes a spectrometer arrangement which bears no relation to a laser scanning microscope. Second, even if Stafford can be combined with Uhl, the combination still does not produce the invention claimed. For a proper combination, the dispersion element 44, 80, 430 of FIGS. 2-4 in Stafford would simply replace the dispersion element 28 in Uhl. That means that the spatially dispersed light will go through a second subtractive dispersion element 34 to re-combine the separated light and the detector 32, 38 would still receive a combined, spatially non-separated integral signal.

If the dispersion element 44, 80, 430 of FIGS. 2-4 in Stafford is simply added as a third dispersion element in Uhl, that combination does not function at all. As taught in Uhl, the whole purpose of having the second dispersion element 34 is to recombine the spatially separated light so that the detector 32, 38 receives the recombined light and not a spatially separated light. Having the third dispersion element would defeat the purpose of the Uhl arrangement. Thus, the combination of Uhl and Stafford still does not produce the invention claimed.

Independent claim 2 recites "a detector receives the selected wavelengths **as dispersed by the dispersion element**". Independent claim 11 recites "a detector operable to receive the focused wavelengths that have been selected by the switchable mirror arrangement and **spatially dispersed by the dispersion element.**" Independent claim 13 recites "the detector receiving the selected wavelengths **as dispersed by the dispersion element**.". For the similar reasons as discussed above with respect to claim 1, Applicant submits that independent claims 2, 11 and 13 are patentable.

Dependent claims 3-4, 12 and 14-15 are also patentable by virtue their dependency from their parent claims.

Based upon the above amendments and remarks, applicants respectfully request reconsideration of this application and its early allowance. Should the Examiner feel that a telephone conference with applicants' attorney would expedite prosecution of this application, the Examiner is urged to contact him at the number indicated below.

Respectfully submitted,

Harry K. Ahn, Reg. No. 40,243

Reed Smith LLP
599 Lexington Avenue
New York, NY 10022